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CENTRAL INTELLIGENCE AGENCY

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2. The research on rocket fuels and hydrogen peroxide did not involve any great security risk, since the work could be done in a laboratory and did not afford us any indication of the Soviet's own research. The Soviets apparently attached a high security priority to the research on heavy water, as they soon dropped their plan of having the German scientists work on this project. It is noteworthy that of the research on heavy water only the development of the catalyst was retained for the Germans. This did not involve testing the activity of the catalyst in producing heavy water. German research on the development of the heavy water itself was abolished and forbidden. The German scientists originally assigned to the research on heavy water were shifted to other assignments.

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3. Although all of us were occupied with some project or other, not one of our group felt that his capabilities were really challenged by his work at the Karpov Institute. Even Asinger's research was done more or less in a void because the Soviets never specified what they expected from him. He was at least, however, permitted to see that his research had resulted in the installation of a pilot plant in factory 54 (or 56), while the rest of us never had any inkling of the results of our labor.
4. The reason for our being removed from the Karpov Institute and sent to Severo-Donetsk may have been twofold:
 - a. We were generally considered a security risk at the high-level Karpov Institute. It is quite conceivable that the heavy water installations at the institute were ready for operation, or that some other research was planned there which was to be kept secret from the German scientists.
 - b. Severo-Donetsk was slated to be a "little Leuna", and it was considered to be a logical place for Leuna scientists to work.
5. The assignments given us at Severo-Donetsk can be divided into two categories:
 - a. Those that gave clues as to the future production of the Severo-Donetsk plant, and
 - b. Those that did not seem to have any connection with the planned operations of the Severo-Donetsk plant.

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In speculating about the future production at Severo-Donetsk it is helpful to analyze our assignments in the following manner:

- a. Who gave the assignment?
- b. What was the content of the assignment?
- c. What reference works were available to accomplish the assignment?

If our assignments are analyzed from this point of view, one arrives at the following:

- a. The project to design a plant for the production of 5000 tons per month of urea (which we refused, and substituted the designing of a pilot plant for the production of urea) was assigned to us by the Chief Engineer Gogin. After its completion we handed it to the chief of the nitric acid plant, Nasarov. From conversations we learned that the chief of the research laboratory, Kukushkin, had read the report. For background on this assignment, the Soviets provided us with literature which had been removed from the chemical plant at Heydebreck in Silesia. Additional reference material was procured from the GIAP in Moscow. This GIAP material was handwritten in Russian, and had crude hand-made drawings. The presence of the Heydebreck literature in the archives of the Severo-Donetsk plant would indicate that the production of urea is planned for the Severo-Donetsk plant. One might also keep in mind that Severo-Donetsk is going to be a carbon copy of Leuna, and that Leuna is taking up the production of urea on the insistence of the Soviets.

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- b. The questionnaire on the brown oxide catalyst was given us by Mursin, the chief of the GIAP branch at Severo-Donetsk. This questionnaire demanded a detailed commentary on the construction plans for a catalyst plant which had been prepared by the Construction Engineer Bureau (KIB), a Leuna foundation. The complete construction plans were contained in seven volumes, of which we were shown only the first. The seven volumes were kept in the archives of Severo-Donetsk. This indicates that a large catalyst plant (surpassing in capacity, possibly, even the Leuna plant) is planned at Severo-Donetsk. This conclusion is supported by the fact that we were given another questionnaire on the production of brown-oxide catalysts, referring to the Heydebreck method. The Heydebreck literature on this subject was also kept in the archives of Severo-Donetsk. Our report on this topic was received by Nasarov, the chief of the nitric acid plant.
- c. The questionnaire about the production and transportation of ammonium nitrate apparently emanated from Nasarov's deputy, Nikitenko. The questions were for the most part basic and childish, and did not betray very much imagination. We were given very scanty reference material so that we consulted in some cases encyclopedias to work out the answers. The assignment had the appearance of an unimaginative attempt to keep us occupied. Nikitenko was not much impressed by our report, but obviously he could not have expected too much on the topic he had given us.
- d. The assignment to write reports on the production of formaldehyde, propionaldehyde, trimethylol ethane, glycerine, fatty acids, alcohol by the Oxo method, synthetic alcohol (Synol), adipic acid, oppanol, mersol, higher molecular alcohols, separation of alcohols in isobutanol fraction, and ammonia catalyst was given to us by the general manager of the plant, Villesov. All concerned Leuna production and methods with the exception of the production of glycerine, which was to be described by the Heydebreck method. The literature we were given for this task was largely that taken from Leuna. Some of this Leuna reference material was requested from Moscow; some was kept in the archives at Severo-Donetsk. This assignment did not permit any conclusions as to the future production at Severo-Donetsk; it seemed to be born of despair because Villesov was at a loss to find any adequate work for us. We had the impression that these questions on Leuna methods were put in some form to all Leuna groups in the USSR. We were quite sure that the Leuna pilot plants for Oxo and Synol production had been taken to Dzerzhinsk, and that at least this part of our assignment did not have any bearing on the plant at Severo-Donetsk.
- e. The two large assignments given us by Makarov, appointed chief of production in May 1950, appeared to have a direct application to the planned factory at Severo-Donetsk. Makarov had just arrived from Leuna where he had held several positions prior to serving for two years as the general manager of the plant. He was thoroughly familiar with Leuna production and Leuna methods, and tried in his assignments to get information from us about variations of Leuna productive methods. His questionnaire on the Fischer-Tropsch method seemed to indicate that Severo-Donetsk would have a plant for the production of synthetic oil. When he demanded a paper on the US method of Fischer-Tropsch production he showed that he had studied the problem (although he was not a chemist) and had realized that the US method was cheaper (cheaper catalyst, no loss of

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time, easy regeneration of the catalyst) and possibly more effective than the German method. The conclusion that synthetic oil will be produced at Severo-Donetsk is further suggested by the fact that Dr Gericks, the Leuna oil expert, was transferred to Severo-Donetsk from Dzerzhinsk in December 1951.

The applicability of the watergas shift reaction assignment to the future production of the plant at Severo-Donetsk is self-explanatory. It is, however, significant that Makarov did not merely desire a copy of the Leuna method, but thought of a variation, ie, to carry out the reaction under pressure, and over a fluidized bed. Again his idea was to save money and power by using a more effective method than the one used at Leuna. Our main reference work for the completion of this assignment was a study written by Mursin, the chief of GIAP branch at Severo-Donetsk. Mursin had collected the data with the help of the chief of the Leuna conversion plant, Baumann, when the former was stationed at Leuna. His study, however, covered only the (unpressured) Leuna method of the watergas shift reaction.

- f. We had indications that a plant for the production of highly concentrated nitric acid may also be planned for Severo-Donetsk. When Herold was requested to make a plan for the installation of a research laboratory, he was advised that the plan should include facilities for the production of highly concentrated nitric acid. The request was made by General Manager Villesov himself. The fact that two rocket fuel experts, Asinger and Loewenberg, were later transferred from Dzerzhinsk to Severo-Donetsk lends additional support to this conclusion. The interest of the Soviets in the production of highly concentrated nitric acid is apparent from the fact that they are pushing the construction of such a plant at Leuna. If this production is planned for Severo-Donetsk, it would be logical to assume that the dismantled plant which was at Leuna during the war was taken to Severo-Donetsk to be installed there.

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